AMENDMENTS TO THE CLAIMS

1-41 (Cancelled)

42. (Previously Presented) An oligonucleotide comprising at least two concatenations coding for a polypeptide with formula $(P\text{-}K)_n$, where:

P represents a proline amino acid residue;

K represents a lysine amino acid residue;

the symbol "-" represents a bond between the two amino acid residues, in particular a peptide-type bond, the n (P-K) units also being bonded together by such bonds, for example peptide-type bonds,

wherein at least one of said concatenations has n superior to 2 and wherein one or more amino acid residues which are neither P nor K residues separate at least one concatenation from a second concatenation.

43. (Currently Amended) The oligonucleotide of claim 42, wherein n is a whole number equal to 3 (SEQ ID NO:12), 4 (SEQ ID NO:13), 5 (SEQ ID NO:14), 6 (SEQ ID NO:15), 7 (SEQ ID NO:16), 8 (SEQ ID NO:17), 9 (SEQ ID NO:18), 10 (SEQ ID NO:19), or 15 (SEQ ID NO:20).

44. (Cancelled)

45. (Previously Presented) The oligonucleotide of claim 42, wherein at least one of said concatenations further codes for at least one lysine residue at its 5' end or its 3' end.

46. (Currently Amended) The oligonucleotide of claim 45, wherein at least one of said concatenations has the formula K-(P-K)$_4$ (SEQ ID NO:21) or 2K(P-K)$_4$ (SEQ ID NO:23).

47-50 (Cancelled)

51. (Withdrawn) The nucleotide sequence according to claim 48, wherein the coding nucleotide concatenation codes for a protein reserve naturally produced by a plant from the legume or crucifer family.

52-55 (Cancelled)

56. (Withdrawn) The nucleotide sequence according to claim 48, wherein the coding nucleotide concatenation codes for a protein reserve of a plant selected from the following: soya, sunflower, tobacco, wheat, oats, alfalfa, rice, oilseed rape, sorghum, and Arabidopsis thaliana.

57-64 (Cancelled)

65. (Withdrawn) A polypeptide coded by a sequence according to claim 47.

66. (Withdrawn) A lysine-enriched modified maize γ-zein, which is coded by a nucleotide sequence according to claim 54.

67. (Withdrawn) A lysine-enriched modified maize γ-zein, the amino acid sequence of which is modified by at least one polypeptide with formula $(P\text{-}K)_n$ or with formula $2K(P\text{-}K)_n$, where:

n is a whole number of 2 or more;

P represents a proline amino acid residue;

K represents a lysine amino acid residue;

the symbol "-" represents a bond between the two amino acid residues, in particular a peptide type bond, the n (P-K) units being bonded together by bonds, in particular peptide type bonds, said polypeptide having formula $(P\text{-}K)_n$ or $K\text{-}(P\text{-}K)_n$ being substituted for a sequence naturally present in the normal maize γ-zein or being inserted with deletion of one or more amino acids of the amino acid

sequence for normal maize γ-zein, or being added to the normal γ-zein amino acid sequence, the insertion site for the polypeptide being selected such that:

when the modified lysine-rich γ-zein is produced in a host cell, in particular in a plant cell, it is localized in identical or similar manner to the normal maize γ-zein which would be produced under the same conditions in the same host cell; and/or

the modified maize γ-zein is recognized by antibodies directed against the normal maize γ-zein.

68. (Withdrawn) The modified maize γ-zein according to claim 67, which is the protein P20γZ or the protein H30γZ or the protein H45γZ.

69-75 (Cancelled)

76. (Withdrawn) The host cell according to claim 71, which is a soya, sunflower, tobacco, wheat, oats, alfalfa, rice, oilseed rape, sorghum or Arabidopsis cell.

77-83 (Cancelled)

84. (Previously Presented) An oligonucleotide having at least two concatenations coding for a polypeptide with formula $(P\text{-}K)_n$, where:

n is equal to 3, or more;

P represents a proline amino acid residue;

K represents a lysine amino acid residue;

The symbol "-" represents a bond between the two amino acid residues, in particular a peptide-type bond, the n (P-K) units also being bonded together by such bonds, for example peptide-type bonds.

85. (Currently Amended) The oligonucleotide of claim 84, wherein n is a whole number equal to 3 (SEQ ID NO:12), 4 (SEQ ID NO:13), 5 (SEQ ID NO:14), 6 (SEQ ID NO:15), 7 (SEQ ID NO:16), 8 (SEQ ID NO:17), 9 (SEQ ID NO:18), 10 (SEQ ID NO:19), or 15 (SEQ ID NO:20).

86. (Previously Presented) The oligonucleotide of claim 84, wherein the sequence of n (P-K) units of one of said at least two concatenations is interrupted, between at least two (P-K) units, by one or more amino acid residues which are neither P nor K residues.

87. (Previously Presented) The oligonucleotide of claim 86, wherein the sequence of n (P-K) units of one of said at least two concatenations is interrupted between more than two (P-K) units.

88. (Previously Presented) The oligonucleotide of claim 84, wherein the concatenation further codes for at least one lysine residue at its 5' end or its 3' end.

89. (Currently Amended) The oligonucleotide of claim 88, having the formula K-$(P\text{-}K)_4$ (SEQ ID NO:21) or $2K(P\text{-}K)_4$ (SEQ ID NO:23).

90. (Previously Presented) A recombinant nucleotide sequence comprising a concatenation of nucleotides coding for a maize γ-zein of 28 kDa, wherein said recombinant nucleotide sequence further comprises the oligonucleotide of claim 42 or claim 84 inserted at one site of the nucleotide concatenation selected such that:

i) expression of the recombinant nucleotide sequence in a particular plant cell enables a modified protein reserve to be produced, wherein said protein reserve is localized in that cell in a manner identical to or similar to the normal protein reserve which would be expressed in the same cell under the same conditions by the corresponding normal coding nucleotide concatenation; or

ii) the modified protein reserve coded by the recombinant nucleotide sequence is immunologically recognized by antibodies produced against the corresponding normal protein reserve.

91. (Previously Presented) The recombinant nucleotide sequence of claim 90, wherein the nucleotide concatenation coding for the maize γ-zein has the sequence set forth in SEQ ID NO:6.

92. (Previously Presented) The recombinant nucleotide sequence of claim 90, wherein the oligonucleotide is inserted in place of or following a Pro-X domain or in a Pro-X domain naturally present in the maize γ-zein.

93. (Previously Presented) The recombinant nucleotide sequence of claim 90, wherein the sequence is under the control of an expression promoter.

94. (Previously Presented) The recombinant nucleotide sequence of claim 93, wherein the promoter is a specific promoter for a given cell tissue, for example a promoter which is specific for expression in grains or in the leaves of plants.

95. (Previously Presented) The recombinant nucleotide sequence of claim 93, wherein the expression promoter is that of maize γ-zein.

96. (Previously Presented) The recombinant nucleotide sequence of claim 93, wherein the expression promoter is the promoter CaMV35S.

97. (Previously Presented) The recombinant nucleotide sequence of claim 92, which codes for one of the polypeptides P20γZ or H45γZ having the sequence set forth in SEQ ID NO:9 or SEQ ID NO:11, respectively.

98. (Previously Presented) The recombinant nucleotide sequence of claim 90, wherein the oligonucleotide is inserted following or in place of a primary structure having tandem repeats rich in proline residues.

99. (Previously Presented) A cloning or expression vector comprising, at a site which is not essential for replication, the nucleotide sequence of claim 90.

100. (Previously Presented) A recombinant host cell comprising the nucleotide sequence of claim 90.

101. (Previously Presented) The host cell of claim 100, wherein said cell is a bacterium.

102. (Previously Presented) The host cell of claim 101, wherein said bacterium is *Escherichia coli* or *Agrobacterium tumefaciens*.

103. (Previously Presented) The host cell of claim 100, which is a plant cell.

104. (Previously Presented) The host cell of claim 103, wherein said plant cell is a plant seed cell.

105. (Previously Presented) The host cell of claim 104, wherein said plant seed cell is a cell from maize seed endosperm.

106. (Previously Presented) The host cell of claim 105, wherein the nucleotide sequence is stably integrated in the genome of the host cell.

107. (Previously Presented) The host cell of claim 105, which produces a lysine-enriched modified maize γ-zein upon expression of the nucleotide sequence.

108. (Previously Presented) A plant producing a polypeptide encoded by the recombinant nucleotide sequence of claim 90, which is a maize γ-plant.

109. (Previously Presented) A method of producing a maize plant or maize seeds expressing a modified protein reserve, which comprises the steps of:

a) transforming a plant cell with the nucleotide sequence of claim 90, or the vector of claim 99, under conditions enabling the modified protein reserve coded by the nucleotide sequence to be expressed in a stable and functional manner;

b) regenerating plants from the plant cell transformed in step a), to obtain plants expressing the modified protein reserve; and

c) if necessary, obtaining seeds from the modified plants obtained in step b).

110. (Previously Presented) An oligonucleotide comprising at least two concatenations coding for a polypeptide with formula $(P\text{-}K)_n$, where:

n is superior to 2;

P represents a proline amino acid residue;

K represents a lysine amino acid residue;

the symbol "-" represents a bond between the two amino acid residues, in particular a peptide-type bond, the n (P-K) units also being bonded together by such bonds, for example peptide-type bonds,

wherein one or more amino acid residues which are neither P nor K residues separate at least one concatenation of said at least two concatenations from a second concatenation.

111. (Previously Presented) An oligonucleotide comprising at least two concatenations coding for a polypeptide with formula $(P\text{-}K)_n$, where:

n is superior to 2;

P represents a proline amino acid residue;

K represents a lysine amino acid residue;

the symbol "-" represents a bond between the two amino acid residues, in particular a peptide-type bond, the n (P-K) units also being bonded together by such bonds, for example peptide-type bonds,

wherein the sequence of n (P-K) units of at least one of said at least two concatenations is interrupted at least once, between two (P-K) units, by one or more amino acid residues which are neither P nor K residues.

112. (Previously Presented) The oligonucleotide of claim 111, wherein the sequence of n (P-K) units of one of said at least two concatenations is interrupted,

between at least two (P-K) units, by one or more amino acid residues which are neither P nor K residues.

113. (Previously Presented) The oligonucleotide of claim 111 or 112, wherein the sequence of n (P-K) units is interrupted between more than two (P-K) units.

114. (Previously Presented) Maize seeds comprising a plant protein encoded by a recombinant nucleotide sequence comprising a concatenation of nucleotides coding for the plant protein and, inserted at one site of the nucleotide concatenation, an oliogonucleotide comprising at least one concatenation coding for a polypeptide with formula $(P\text{-}K)_n$, where:

n is equal to 3, or more;

P represents a proline amino acid residue;

K represents a lysine amino acid residue;

the symbol "-" represents a bond between the two amino acid residues, in particular a peptide-type bond, the n (P-K) units also being bonded together by such bonds, for example peptide-type bonds,

wherein the insertion site of the oligonucleotide is selected such that:

i) expression of the recombinant nucleotide sequence in a particular plant cell enables a modified protein reserve to be produced, wherein said protein reserve is

localized in that cell in a manner identical to or similar to the normal protein reserve which would be expressed in the same cell under the same conditions by the corresponding normal coding nucleotide concatenation; or

ii) the modified protein reserve coded by the recombinant nucleotide sequence is immunologically recognized by antibodies produced against the corresponding normal protein reserve.

115. (Previously Presented) The maize seeds of claim 114, wherein said protein reserve is a maize γ-zein of 28 kDa.

116. (Previously Presented) The maize seeds of claim 114, wherein the sequence of n (P-K) units of at least one concatenation is interrupted, between at least two (P-K) units, by one or more amino acid residues which are neither P nor K residues.

117. (Previously Presented) The maize seeds of claim 116, wherein the sequence of n (P-K) units is interrupted between more than two (P-K) units.

118. (Currently Amended) The maize seeds of claim 114, wherein n is a whole number equal to 3 (SEQ ID NO:12), 4 (SEQ ID NO:13), 5 (SEQ ID NO:14), 6 (SEQ ID

NO:15), 7 (SEQ ID NO:16), 8 (SEQ ID NO:17), 9 (SEQ ID NO:18), 10 (SEQ ID NO:19), or 15 (SEQ ID NO:20).

119. (Previously Presented) The maize seeds of claim 114, wherein the oligonucleotide further codes for at least one lysine residue at the 5' or 3' end and the polypeptide coded for by the oligonucleotide is present within the N-terminal domain of the plant protein.

120. (Currently Amended) The maize seeds of claim 119, wherein the oligonucleotide comprising at least one concatenation codes for a polypeptide having the formula K-(P-K)$_4$ (SEQ ID NO:21) or 2K(P-K)$_4$ (SEQ ID NO:23).

121. (Previously Presented) The maize seeds of claim 114, wherein the plant protein is the maize γ-zein having the sequence set forth in SEQ ID NO:6.

122. (Previously Presented) The maize seeds of claim 121, wherein the oligonucleotide is inserted in place of or following a Pro-X domain or in a Pro-X domain naturally present in the maize γ-zein.

123. (Previously Presented) The maize seeds of claim 122, wherein the nucleotide

sequence codes for one of the polypeptides P20γZ or H45γZ having the sequence set forth in SEQ ID NO:9 or SEQ ID NO:11, respectively.

124. (Previously Presented) A cloning and/or expression vector, which is one of plasmids pP20γZ (CNCM N° I-1640), pH30γZ or pH45γZ (CNCM N° I-1639).